

WHAT WE CLAIM IS:

1. Combustion engine with a displacement H and with a downstream catalytic converter for cleansing exhaust gases, wherein:
 - the catalytic converter has a geometric surface O ;
 - the catalytic converter has an effectiveness E for converting at least one harmful component in the exhaust gas into harmless components;
 - the catalytic converter includes at least one honeycomb body; and
 - the honeycomb bodies together have a total volume V , the volume V being selected such that it is smaller by at least a factor of 0.6 than the displacement H , while the geometric surface O is dimensioned such that the catalytic converter has an effectiveness E of more than 98%.
2. The combustion engine of claim 1, wherein said at least one honeycomb body is provided with channels through which exhaust gas can flow, wherein the number A of channels in the cross-section of the honeycomb body is at least 500 cpsi (cells per square inch).
3. The combustion engine of claim 2, wherein said at least one honeycomb body is a metallic honeycomb body of layered and/or wound, and at least in part structured, sheet metal layers.
4. The combustion engine of claim 3, wherein the channels are separated from one another by channel walls, an average thickness of which is at the most 40 micrometres.
5. The combustion engine of claim 3, wherein the channels are separated from one another by channel walls, an average thickness of which is at most 35 micrometres.
6. The combustion engine of claim 3, wherein the channels are separated from one another by channel walls, an average thickness of which is between 18 and 32 micrometres.

7. The combustion engine of claim 3, wherein the number of channels of said at least one honeycomb body over a cross-section through the honeycomb body is at least 600 cpsi, while the average thickness of the channel walls is at the most 32 micrometres.

8. The combustion engine of claim 3, wherein the catalytic converter is a three-way catalytic converter, and in normal operation converts at least 98% of the hydrocarbons and nitrous oxides in the exhaust gas.

9. The combustion engine of claim 3, wherein the catalytic converter is a three-way catalytic converter, and in normal operation converts 99% of the hydrocarbons and nitrous oxides in the exhaust gas.

10. The combustion engine of claim 3, wherein said at least one honeycomb body has a number of channels of more than 750 cpsi, and a volume V of less than 0.5 times the displacement H.

11. The combustion engine of claim 3, wherein an average thickness of the channel walls of said at least one honeycomb body is less than 32 micrometres.

12. The combustion engine of claim 3, wherein an average thickness of the channel walls of said at least one honeycomb body is approximately 25 micrometres.

13. The combustion engine of claim 2, wherein the channels are separated from one another by channel walls, an average thickness of which is at the most 40 micrometres.

14. The combustion engine of claim 2, wherein the channels are separated from one another by channel walls, an average thickness of which is at most 35 micrometres.

15. The combustion engine of claim 2, wherein the channels are separated from one another by channel walls, an average thickness of which is between 18 and 32 micrometres.

16. The combustion engine of claim 2, wherein the number of channels of said at least one honeycomb body over a cross-section through the honeycomb body is at least 600 cpsi, while the average thickness of the channel walls is at the most 32 micrometres.

17. The combustion engine of claim 2, wherein the catalytic converter is a three-way catalytic converter, and in normal operation converts at least 98% of the hydrocarbons and nitrous oxides in the exhaust gas.

18. The combustion engine of claim 2, wherein the catalytic converter is a three-way catalytic converter, and in normal operation converts 99% of the hydrocarbons and nitrous oxides in the exhaust gas.

19. The combustion engine of claim 2, wherein said at least one honeycomb body has a number of channels of more than 750 cpsi, and a volume V of less than 0.5 times the displacement H.

20. The combustion engine of claim 2, wherein an average thickness of the channel walls of said at least one honeycomb body is less than 32 micrometres.

21. The combustion engine of claim 2, wherein an average thickness of the channel walls of said at least one honeycomb body is approximately 25 micrometres.

22. The combustion engine of claim 1, wherein said at least one honeycomb body is a metallic honeycomb body of layered and/or wound, and at least in part structured, sheet metal layers.

23. The combustion engine of claim 22, wherein the channels are separated from one another by channel walls, an average thickness of which is at the most 40 micrometres.

24. The combustion engine of claim 22, wherein the channels are separated from one another by channel walls, an average thickness of which is at most 35 micrometres.

25. The combustion engine of claim 22, wherein the channels are separated from one another by channel walls, an average thickness of which is between 18 and 32 micrometres.

26. The combustion engine of claim 22, wherein the number of channels of said at least one honeycomb body over a cross-section through the honeycomb body is at least 600 cpsi, while the average thickness of the channel walls is at the most 32 micrometres.

27. The combustion engine of claim 22, wherein the catalytic converter is a three-way catalytic converter, and in normal operation converts at least 98% of the hydrocarbons and nitrous oxides in the exhaust gas.

28. The combustion engine of claim 22, wherein the catalytic converter is a three-way catalytic converter, and in normal operation converts 99% of the hydrocarbons and nitrous oxides in the exhaust gas.

29. The combustion engine of claim 22, wherein said at least one honeycomb body has a number of channels of more than 750 cpsi, and a volume V of less than 0.5 times the displacement H.

30. The combustion engine of claim 22, wherein an average thickness of the channel walls of said at least one honeycomb body is less than 32 micrometres.

31. The combustion engine of claim 22, wherein an average thickness of the channel walls of said at least one honeycomb body is approximately 25 micrometres.

32. The combustion engine of claim 1, wherein the catalytic converter is a three-way catalytic converter, and in normal operation converts at least 98% of the hydrocarbons and nitrous oxides in the exhaust gas.

33. The combustion engine of claim 1, wherein the catalytic converter is a three-way catalytic converter, and in normal

operation converts 99% of the hydrocarbons and nitrous oxides in the exhaust gas.

34. The combustion engine of claim 1, wherein said at least one honeycomb body has a number of channels of more than 750 cpsi, and a volume V of less than 0.5 times the displacement H.

35. The combustion engine of claim 1, wherein an average thickness of the channel walls of said at least one honeycomb body is less than 32 micrometres.

36. The combustion engine of claim 1, wherein an average thickness of the channel walls of said at least one honeycomb body is approximately 25 micrometres.

37. The combustion engine of claim 32, wherein said at least one honeycomb body has a number of channels of more than 750 cpsi, and a volume V of less than 0.5 times the displacement H.

38. The combustion engine of claim 37, wherein an average thickness of the channel walls of said at least one honeycomb body is less than 32 micrometres.

39. The combustion engine of claim 37, wherein an average thickness of the channel walls of said at least one honeycomb body is approximately 25 micrometres.